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NOSTRATICA KIOVIENSIS
in honore Vladislav M. Illič-Svityč



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*** KəɬHä wɛtɛi ʔaʔun kaŋa
^{kaɬai}
~~peɬeɪ~~ paɬn=kɬ na wɛtə
 ʂa da ʔa=kɬ ʔeja ʔäɬä
 ja=kɔ peɬe tɪva wɛtɛ.

Язык - это мост через реку времени,
 он ведёт нас к жилищу ушедших;
 но туда не сможет прийти тот,
 кто боится глубокой воды.

Vladislav M. Illič-Svityč
 (1934 – 1966)

NOSTRATICA KIOVIENSIS

in honore Vladislav M. Illič-Svityč

Collegit
Nazarii Nazarov

NOSTRATICA KIOVIENSIS

на пошану В.М. Ілліч-Світлича

80 років тому, 12 вересня 1934 року, в Києві народився Владислав Маркович Ілліч-Світич. Цей збірник статей – данина пам'яті видатному лінгвістові від його співвітчизників та мовознавців із різних країн світу.

80 years ago, September 12, 1934, Vladislav M. Illič-Svityč was born in Kiev. This collection of articles is a tribute to the memory of outstanding linguist from his compatriots and linguists from different countries of the world.

The photo on the front cover, depicting V.M. Illič-Svityč in Orenburg, 1950-1951, as also the photo on the backcover, depicting linguist about 1955, and copy of manuscript of V.M. Illič-Svityč on the third page, are courtesy of Prof V.V. Shevoroshkin (USA) and are published here with his consent, as other photomaterial. The owner expresses his gratitude for digitalizing the photos to his colleagues Olga Podugolnikova and Alexander Korostelev (Ольга Подугольникова и Александр Коростелев)

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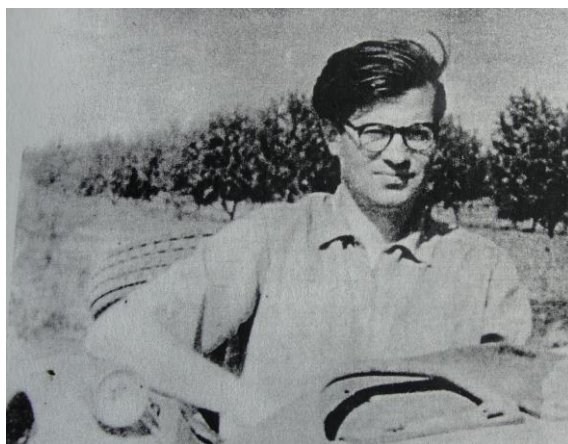
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Vladislav M. Illič-Svityč with friends
Orenburg, between 1950 and 1955



Vladislav M. Illič-Svityč
Orenburg, the 1950th

Photos are courtesy of Professor Vitaliy V. Ševoroškin

THE NOSTRATIC HYPOTHESIS IN 2014

1. Background

The Nostratic Hypothesis got its start in 1903 with a suggestion by the Danish Indo-Europeanist Holger Pedersen (1867—1953) that a number of languages/language families of northern Eurasia and the ancient Near East might be genetically related (cf. Pedersen 1931:335—339). He coined the term “Nostratic” to refer to this proposed grouping of languages. Early work was done by a small number of scholars on the question of distant linguistic relationship, but most of that work was of poor quality and was, consequently, largely ignored by mainstream linguists. It was not until the mid-1960s that the Russian linguists Vladislav M. Illič-Svityč (В. М. Иллич-Свитыч) (1934—1966) and Aharon Dolgopolsky (А. Б. Долгопольский) (1930—2012) began to make meaningful progress in reconstructing the Nostratic parent language. Subsequently, a number of other scholars in other countries began making important contributions as well — these include: Václav Blažek, Michael Fortescue, Joseph H. Greenberg, Alexis Manaster Ramer, Sergei Starostin, and Vitaly Shevoroshkin, among others. Two schools have come into being: (1) the “Moscow School” (Illič-Svityč, Dolgopolsky, Starostin) and (2) the work of the American Allan R. Bomhard (b. 1943). Serious work continues unabated.

2. Evidence for Nostratic

The following evidence provides the basis for setting up a Nostratic macro-family:

1. First and foremost, the descendant languages can be shown to share a large common vocabulary. In an article published in 1965, Illič-Svityč listed 607 possible common Nostratic roots, but only 378 roots were published in his posthumous comparative Nostratic dictionary (1971—1984). Beginning in the early 1960s and continuing until his death in 2012, Dolgopolsky had been gathering material for a new Nostratic dictionary. In 2008, a draft of his *Nostratic Dictionary* became available online at: <http://www.dspace.cam.ac.uk/handle/1810/196512>. It contains well over 3000 Nostratic roots. It may be noted that Bomhard (2009) has prepared a critical review of this work (unpublished manuscript but available online at academia.edu, scribd.com, and Internet Archive). In 1994, Allan R. Bomhard and John C. Kerns published a joint monograph entitled *The Nostratic Macrofamily: A Study in Distant Linguistic Relationship*, in which 601 common Nostratic roots were listed, and another 50 were subsequently proposed by Bomhard (1996). In 2008, Bomhard published a two-volume monograph entitled *Reconstructing Proto-Nostratic*:

Comparative Phonology, Morphology, and Vocabulary. Volume 2 of this work is devoted to comparative vocabulary. In it, Bomhard supplies material to support the reconstruction of 843 common Nostratic roots. In 2014, Bomhard published a revised, corrected, and expanded edition of this work under the title *A Comprehensive Introduction to Nostratic Comparative Linguistics: With Special Reference to Indo-European* on-line under a Creative Commons license (a second edition is in preparation). It includes 963 Nostratic roots. In volume 2 of his book *Indo-European and Its Closest Relatives: The Eurasiatic Language Family* (2002), Joseph H. Greenberg presented a large amount of lexical material to support the reconstruction of his Eurasiatic Macrofamily (Eurasiatic may be viewed as a branch of Nostratic). In a number of articles published over the past thirty years, the Czech scholar Václav Blažek has also made many important contributions to the reconstruction of the common Nostratic vocabulary. It should be noted that there are many shared etymologies in the works of these different scholars.

2. As is to be expected, the various branches of Nostratic investigated to date exhibit regular sound correspondences (see the Appendix at the end of this paper for details), though, it should be mentioned, there are differences in interpretation between Illič-Svityč and Dolgopolsky on the one hand and Bomhard on the other (see below [§13]).
3. Finally, a substantial number of common grammatical formants have now been recovered — many of these are listed in Illič-Svityč's comparative Nostratic dictionary (1971—1984); see also Dybo (2004), the chapter on Nostratic morphology by John C. Kerns in Bomhard—Kerns (1994:141—190), volume 1 of Greenberg's *Indo-European and Its Closest Relatives: The Eurasiatic Language Family* (Greenberg 2000), and Chapters 16 and 17 of Bomhard's 2008 book *Reconstructing Proto-Nostratic* (Bomhard 2008.1:273—415).

Notable among the lexical items uncovered by Illič-Svityč, Dolgopolsky, Greenberg, and Bomhard is a solid core of common pronominal stems. These pronominal stems have particular importance, since, as demonstrated by John C. Kerns (1985:9—50), pronouns, being among the most stable elements of a language, are a particularly strong indicator of genetic relationship (Ruhlen 1994:92—93 makes the same point, as did Björn Collinder before him).

The conclusion seems inescapable that the consistent, regular phonological correspondences that can be shown to exist among the Nostratic daughter languages as well as the agreements in vocabulary and grammatical formants that have been uncovered to date cannot be explained as due to linguistic borrowing or mere chance but can only be accounted for in terms of common origin, that is, genetic relationship. To assume any other possibility would be tantamount to denying the efficacy of the Comparative Method. This does not mean that all problems have been solved. On the contrary, there remain many issues to be investigated and many details to be worked out, but the future looks extremely exciting and extremely promising.

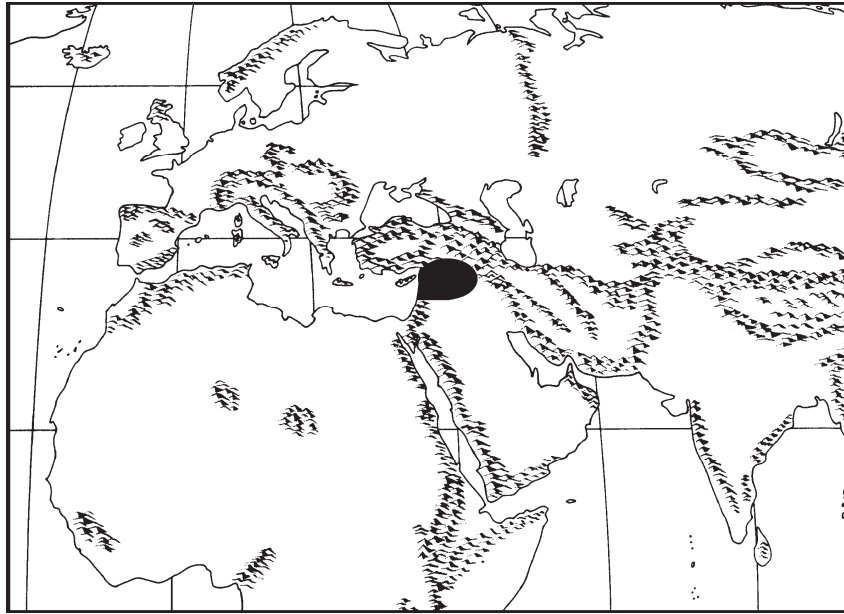
At this stage of research, we can confidently say that the following languages/language families are to be included in the Nostratic macrofamily: Afroasiatic (also called Afrasian, Hamito-Semitic, Semito-Hamitic), Elamo-Dravidian, Kartvelian (also

called South Caucasian), and Eurasiatic. Eurasiatic, in turn, includes the following: Tyrrhenian (Etruscan, Raetic, and Lemnian), Indo-European, Uralic-Yukaghir, Altaic (Tungus, Mongolian, and Turkic), Chukchi-Kamchatkan, Gilyak, and Eskimo-Aleut. Other languages may belong as well, such as, for example, Korean and Japonic (Japanese-Ryukyuan). But much work needs to be done before these two groups can be convincingly shown to be related to Altaic (itself quite controversial), as is often assumed, let alone Nostratic. Finally, there may be closer relationships between some of the branches, such as Chukchi-Kamchatkan and Eskimo-Aleut as proposed by Eric P. Hamp or Chukchi-Kamchatkan and Gilyak / Nivkh as proposed by Michael Fortescue.

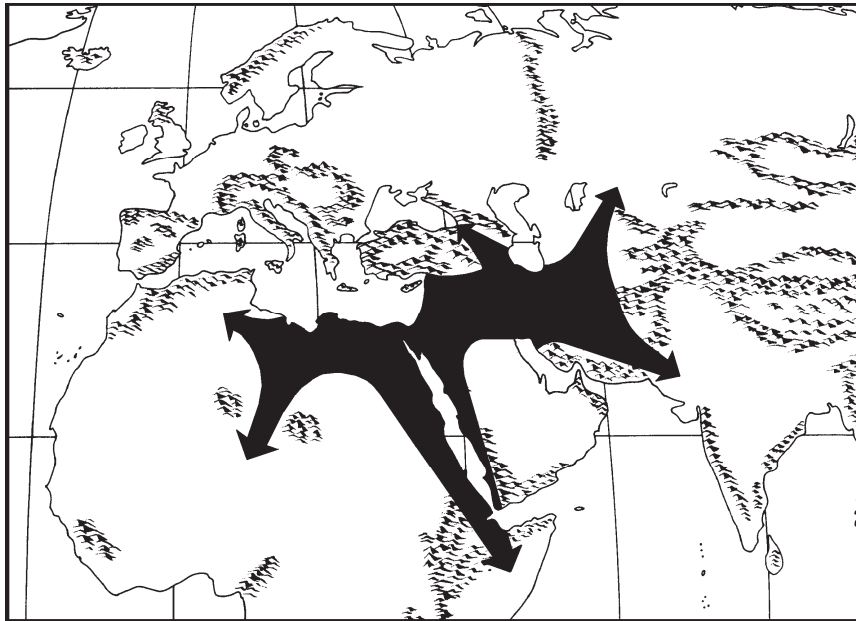
3. Nostratic Homeland

Analysis of the available evidence has enabled us to determine the most likely homeland of the Nostratic parent language, to establish a time-frame during which Proto-Nostratic might have been spoken, to date the disintegration of Proto-Nostratic, and to trace the early dispersal of the daughter languages. The following scenario emerges: The unified Nostratic parent language may be dated to between 15,000 to 12,000 BCE, that is, at the end of the last Ice Age — it was most likely located in the Fertile Crescent just south of the Caucasus Mountains. Beginning around 12,000 BCE, Nostratic began to expand, and, by 10,000 BCE, several distinct dialect groups had come into being. The first to split off from the main speech community was Afroasiatic. One dialect group spread from the Fertile Crescent to the northeast, eventually reaching Central Asia sometime before 9,000 BCE — this was Eurasiatic. Another dialect group spread eastward into western and central Iran, where it developed into Elamo-Dravidian at about 8,000 BCE. If Johanna Nichols is correct in seeing Pre-Proto-Kartvelian as having migrated from Central Asia westward below the Caspian Sea to the Caucasus, this would seem to imply that Pre-Proto-Kartvelian had first migrated northeastward from the Fertile Crescent along with or as part of Pre-Proto-Eurasiatic, that it stopped somewhere along the way, and that it then returned to the Middle East. For details, cf. Dolgopolsky 1998 and Bomhard 2008.1:221—252.

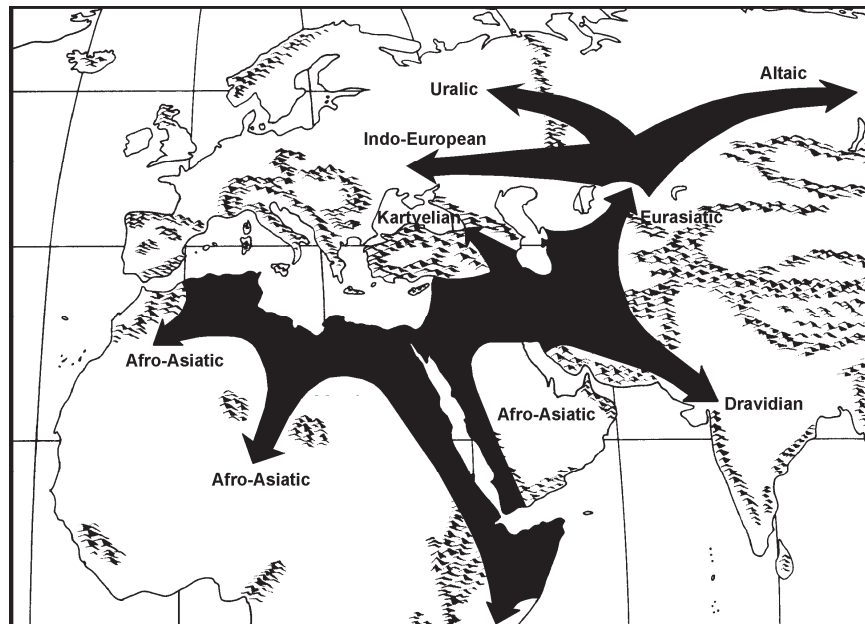
The following map shows the approximate location of the Nostratic homeland around 15,000 BCE (cf. Bomhard 2008.1:246; 2014a.1:268):



The following map shows the approximate areas to which Nostratic languages had spread by about 8,000 BCE:

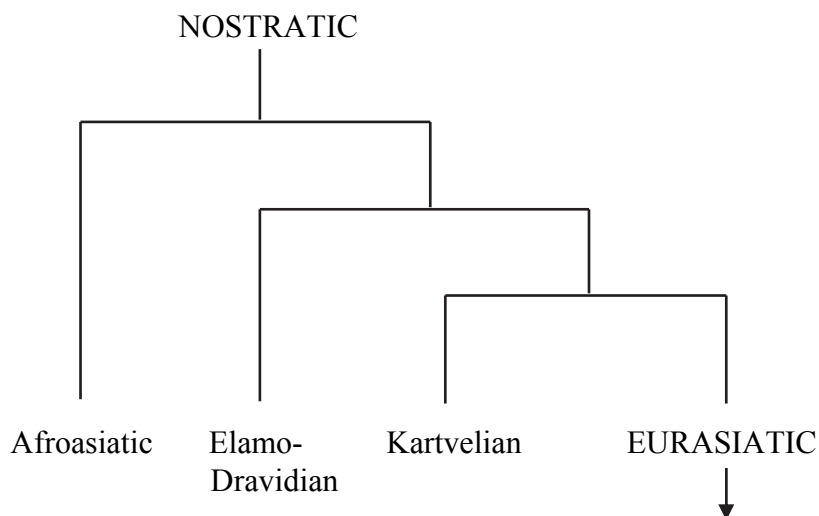


The following map shows the dispersal of the Nostratic languages at about 5,000 BCE:



4. The Position of Afroasiatic

From time to time, several scholars (such as Greenberg, Ruhlen, and Starostin) have suggested that Afroasiatic should be viewed as a sister (“coordinate”) language to Nostratic rather than as a Nostratic daughter language, while others, including Illič-Svityč, Dolgopolsky, and Bomhard, see it as a full-fledged branch of Nostratic. However, this is not necessarily an “either/or” issue. Another explanation is possible, namely, the recognition that not all branches of Nostratic are on an equal footing. Afroasiatic can be seen as the first branch to have become separated from the main speech community, followed soon thereafter by Elamo-Dravidian, then by Kartvelian, and, finally, by Greenberg’s Eurasiatic, which was the last branch to become differentiated into separate languages and language families, as illustrated in following chart (cf. Bomhard 2008.1:28 and 1:521; 2014a:28 and 1:563):



Tyrrhenian	Indo-European	Uralic- Yukaghir	Altaic	Chukchi- Kamchatkan	Gilyak (Nivkh)	Eskimo- Aleut

By adopting this scenario, Dolgopolsky's conclusion (2008:33) that "... the traditional Nostraticist view considering HS as a branch of N is still valid" can be maintained, while the objections raised by Greenberg, Ruhlen, and Starostin can also be accommodated. Thus, Afroasiatic is to be seen as a branch of Nostratic rather than as a sister language. It should be noted that, just before his untimely death, Starostin had changed his mind and had sought to reintegrate Afroasiatic into Nostratic.

The question of the position of Afroasiatic is related to the problem of the location of the Afroasiatic homeland in both time and space. Various possibilities have been suggested, including Africa and the Levant, while the dating has been difficult to ascertain. This problem has recently been addressed by Václav Blažek (to appear). According to Blažek, the original Afroasiatic homeland is to be sought in the Levant (see Bomhard 2008.1:226—228; 2014a.1:244—250 for similar views). Blažek notes that the following arguments speak in favor of a location of the Afroasiatic parent language in the Levant:

1. Distant relationship of Afroasiatic with Kartvelian, Elamo-Dravidian, Indo-European, and other language families within the framework of the Nostratic Hypothesis;
2. Lexical parallels connecting Afroasiatic with Near Eastern languages which cannot be explained from Semitic alone;
3. Sumerian-Afroasiatic lexical parallels indicating an Afroasiatic substratum in Sumerian;
4. Elamite-Afroasiatic lexical and grammatical cognates explainable as a common heritage (through Nostratic or some intermediary stage);
5. North Caucasian-Afroasiatic parallels in cultural vocabulary explainable through contact at a very remote (pre-Semitic) period.

Blažek maintains that the most likely scenario for the disintegration of Proto-Afroasiatic and the migrations of speakers of the various daughter languages can be accounted for by two distinct migrations from the Levant: the first branches to become separated were Cushitic and Omotic, at around 12,000 BP. They spread southward into the Arabian Peninsula. The second series of migrations separated Egyptian, Berber, and Chadic from Semitic, which remained in the Levant, at around 11,000—10,000 BP. Egyptian, Berber, and Chadic migrated first to the Nile Delta and Valley, where Egyptian remained, while Berber and Chadic continued westward and southwestward.

Blažek's views concerning the migrations of each of the individual branches of Afroasiatic may be summarized as follows:

Semitic: The Semitic ecological vocabulary indicates that the Semitic homeland is to be located in the northern Levant. The homeland of the Akkadians was in northern and central Mesopotamia. Beginning with the reign of Sargon, Akkadian began to replace Sumerian in Southern Mesopotamia. It also spread into Elam, Syria, and Anatolia. In the 2nd millennium BCE, the Babylonian dialect was used as a diplomatic language in the Near East, including Egypt. The massive migration of the Canaanite tribes into Lower Egypt around 1700 BCE has been connected with the invasion of the Hyksos. A part of this multi-ethnic conglomeration could have been Hebrews, whose return to the Levant is described in the book of Exodus in the Bible. This narrative is supported by the linguistic analysis of the Egyptian toponyms from the Bible. The oldest Phoenician inscriptions are known from Byblos and later also from Tyre, Sidon, and other Levantine ports. During the 1st millennium BCE, Phoenicians founded numerous colonies in southern Anatolia, Cyprus, Malta, Sicily, Sardinia, the coast of Libya, Tunisia, Algeria, and on to Morocco and the Iberian Peninsula. Although the strongest of them, Carthage, was destroyed by the Romans in 146 BCE, the Phoenician/Punic language survived in North Africa until the 5th century CE. Traces of Punic influence have been identified in modern Berber languages. In the late 2nd millennium BCE, Aramaeans lived in northern Syria and northwestern Mesopotamia. During the first half of the 1st millennium BCE, their inscriptions appeared throughout the Fertile Crescent. From the end of 9th to mid-7th centuries BCE, Aramaeans were brought into North Mesopotamia as captives of the Assyrians. At the time of a fall of Assyria (612 BCE), Aramaic was already a dominant language in northern Mesopotamia, and from the time of the Babylonian captivity (586—539 BCE), Aramaic began to replace Hebrew in Palestine. Aramaic became the dominant Near Eastern language during the Achaemenid Empire (539—331 BCE), where it served as a language of administration from Egypt and northern Arabia to Central Asia and the borders of India, where the Aramaic script served as the basis for local Indian scripts. The dominant role of Aramaic in the Near East continued until the expansion of Arabic in the 7th century CE. Even though it has been mostly replaced by Arabic, small pockets of Aramaic speakers have remained in the Near East until the present day. A half millennium before the rise of Islam, Arabs expanded from northern Arabia into the southern Levant and Mesopotamia. Two Arabic speaking states, Palmyra and the Nabatean kingdom, controlled the commercial routes between the Mediterranean Sea, the Red Sea, and the Persian Gulf. With the spread of Islam, the rapid expansion of Arabic began. By the 8th century CE, Arabic was used from Morocco and the Iberian Peninsula in the west to Central Asia in the east. Although Arabic has lost ground in some areas (the Iberian Peninsula, Sicily, and Iran), elsewhere, it has expanded. In Africa, it spread to the southern border of the Sahara and along the East African coast. One of the pre-Islamic languages of Yemen crossed the Red Sea into Eritrea and northern Ethiopia in the early 1st millennium BCE and became the base of the Ethiopic branch of Semitic. Separation of the northern and southern Ethio-Semitic subbranches has been dated to 890 BCE.

Egyptian: Egyptian was spoken in the Nile Valley from Lower Nubia to the Delta, probably also in the oases of the Western Desert and, due to Egyptian expansion

during the New Kingdom, also in the Sinai Peninsula and Palestine. The unification of Upper and Lower Egypt in 3226 BCE probably stimulated a process of integration of local dialects. Only a few traces remained of the original dialectal diversity. In the course of time, new dialects developed such as the Sahidic, Akhmimic, and Bohairic dialects of Coptic.

Berber: Not only do the modern Berber languages spoken across North Africa from Morocco, Senegal, and Mauritania in the west to Egypt (Oasis Siwa) in the east belong to the Berber branch of Afroasiatic, so do the language(s) of the Libyco-Berber inscriptions attested from the Canary Islands to Libya and dated from the 7/6th century BCE to the 4th century CE, as well as fragments of languages of the original inhabitants of the Canary Islands recorded by Spanish and Italian chroniclers in the 14–16th centuries CE. No doubt, the Proto-Berbers spread westward along the Mediterranean coast from the Nile Valley.

Cushitic: A Cushitic-like substratum has been identified in Modern South Arabian, and it has been proposed that early Cushitic speakers originally occupied the entire Arabian Peninsula. Thus, they can be seen as southern neighbors of the Semites, who gradually assimilated those Cushites who did not cross the Bab al-Mandeb into what is now Eritrea, Djibouti, and Ethiopia. This hypothesis is supported by the rock art of Central Arabia. The spread of Cushites in Africa is connected with the Rift Valley. In the coastal areas of Eritrea and Djibouti, where the Rift enters the African mainland, three archaic representatives of the North, Central, and Eastern branches of Cushitic are found: (1) Beja / Beḏawye, (2) Bilin, and (3) Saho-Afar, respectively. The disintegration of Cushitic probably began in this general area. Ancestors of Agaw spread throughout Eritrea and northern Ethiopia, while Beja / Beḏawye spread into the Sudan between the Nile and the Red Sea. Other East and South Cushitic languages moved further south along the Rift Valley through Ethiopia and Kenya, and even into Central Tanzania. Further migrations from the Rift Valley spread the Cushites throughout the Horn of Africa and south into Kenya.

Omotic: Both the external and internal classifications of Omotic remain controversial. The separation of Omotic as a distinct branch of Afroasiatic from what was formerly called “West Cushitic” was originally based on a lexicostatistic analysis. But a later grammatical analysis demonstrated that most of the grammatical formants that Omotic inherited from Afroasiatic are shared with Cushitic. Then, it was shown that there were numerous lexical isoglosses connecting Omotic with other Afroasiatic branches that were not shared with Cushitic, providing further evidence that Omotic and Cushitic are sister branches, and that Omotic is not West Cushitic. That Cushitic and Omotic should be considered distinct branches of Afroasiatic now seems certain. The separation of Cushitic and Omotic has been dated to the early 8th millennium BCE.

Chadic: The disintegration of Proto-Chadic has been dated to around 5000 BCE. The easternmost Chadic language is Kajakse from the archaic Mubi group, spoken in the Waddai highlands in Southeastern Chad. This area is accessible from the Nile Valley in two ways only: along the Wadi Howar north of Darfur and along the Bahr al-Ghazal and its north tributary Bahr al-‘Arab south of Darfur. The northern route could lead along the Batha River, which flows into Lake Fitri at the present time but which formed a part of a much larger Lake Chad in the past (around 4000 BCE). The southern

route could continue along the Bahr Azoum/Salamat in the basin of the Chari River, the biggest tributary of Lake Chad.

5. A Sketch of Proto-Nostratic Phonology

Proto-Nostratic had a rich system of stops and affricates. Each stop and affricate series was characterized by the three-way contrast (1) voiceless (aspirated), (2) voiced, and (3) glottalized. The aspiration of series (1) was phonemically non-distinctive.

According to Bomhard (2008.1:213—220; 2014a.1:225—237), the Proto-Nostratic phonological system may be reconstructed as follows:

Stops and Affricates:

p ^h	t ^h	c ^h	č ^h	ty ^h	tʃ ^h	k ^h	k ^{wh}	q ^h	q ^{wh}		
b	d	ɟ	ž	dʏ	dʒ (?)	g	g ^w	g	g ^w		
p'	t'	c'	č'	t'y	tʃ'	k'	k' ^w	q'	q' ^w	ʔ	ʔ ^w

Fricatives:

s	š	sʏ	x	x ^w	h	ħ
z	ž (?)	zʏ (?)	ɣ			ʕ

Glides:

w	y
---	---

Nasals and Liquids:

m	n	nʏ	ŋ
	l	lʏ	
	r	rʏ	

Vowels:	i (~ e)	u (~ o)
	e	o
	(ə ~) a	

Also the sequences:	iy (~ ey)	uy (~ oy)	ey	oy	(əy ~) ay
	iw (~ ew)	uw (~ ow)	ew	ow	(əw ~) aw

The phonological system reconstructed above for Proto-Nostratic is closer to that of Proto-Afroasiatic than it is to the phonological systems of any of the other branches. This is as it should be, inasmuch as Proto-Afroasiatic was the oldest branch, the first to become separated from the rest of the Nostratic speech community. In like manner, Proto-Afroasiatic (along with Proto-Dravidian) is of paramount importance for the reconstruction of Proto-Nostratic morphology.

5.1. Dolgopolsky's Reconstruction

While the actual reconstruction of the Proto-Nostratic phonological system is fairly close, Dolgopolsky and Bomhard arrive at their reconstructions through two different sets of sound correspondences. Though Dolgopolsky mostly adheres to the sound correspondences originally established by Illič-Svityč, he does make some modifications based upon his own research. Illič-Svityč did not prepare a table of Nostratic sound correspondences himself, but the work was done for him by his friend Vladimir Dybo and included at the beginning of volume 1 (pp. 147—171) of Illič-Svityč's posthumous Nostratic dictionary (1971—1984). The following table is taken from page 147 of this dictionary and includes only the stops:

Nostratic Init. Med.	Semito- Hamitic	Kartvelian	Indo- European	Uralic	Dravidian	Altaic
p ^ʼ -	p	p, p̣	p	p-	p-	p ^ʼ -
-p ^ʼ -	p	p	p	-pp- ~ -p-	-pp- ~ -p-	-p- ~ -b-
p-	p ₁	p ₁ (p ~ b)	p ~ b	p-	p ₁ - (p- ~ v-)	p-
-p-	p ₁	p ₁ (p ~ b)	p ~ b	-p-	-pp- ~ -v-	-b-
b-	b	b	bh	p-	p-	b
-b-	b	b	bh	w-	-?- ~ -v-	-b-
t̪-	t̪ (t)	t̪	t	t-	t-	t ^ʼ -
-t̪-	t̪ (t)	t̪	t	-tt- ~ -t-	-t(t)-	-t-
t-	t	t	d	t-	t-	t-
-t-	t	t	d	-t-	-t(t)-	-d-
d-	d	d	dh	t-	t-	d-
-d-	d	d	dh	-δ-	-t(t)-	-d-
k̪-	q (k)	k̪	ḱ, k, k ^u	k-	k-	k ^ʼ -
-k̪-	q	k̪	ḱ, k, k ^u	-kk- ~ -k-	-k(k)-	-k- ~ -g-
k-	k	k	ḡ, g, g ^u	k-	k-	k-
-k-	k	k	ḡ, g, g ^u	-k-	-k(k)-	-g-
g-	g	g	ḡh, gh, g ^u h	k	k-	g-
-g-	g	g	ḡh, gh, g ^u h	-γ-	-:Ø-	-g-

Dolgopolsky (2008:9—16) proposes the following Nostratic sound correspondences (as above, only the stops are given):

Nost.	Sem.	Eg.	Berber	Kart.	IE	Uralic	Turk.	Mong.	Tung.	Drav.
*b-	*b	b	*b	*b	*b ^h	*p	*b	*b	*b	*p
*-b-	*b	b	*b, *β	*b	*b ^h	*w, ⊥ /*p	*b	*b	*b	*v
*p-	*p	f	*f	*p	*p, *b	*p	*b, *p ^ˀ	*φ, ? *b	*p	*p
*-p-	*p	f	*f	*p, ? *b	*p, *b	*p, ? *w	*Ø	*φ > *γ	*b	
*p̥-	*p	p	*f	*p, *p̥	*p	*p	*h > *Ø	*φ	*p	*p
*-p̥-	*p	p	*f	*p, *p̥	*p	*p	*pp	*p, *b	*b	*pp
*d-	*d	d	*d	*d	*d ^h	*t	*ɟ	*d, i/*ǰ	*d	*t
*-d-	*d	d	*d	*d	*d ^h	*δ	*δ	*d	*d	t/tt
*t-	*t	t	*t	*t	*d	*t	*t ^ˀ	*d, i/*ǰ	*d	*t
*-t-	*t	t	*t	*t	*d	*t	*t	*d	*d	*t̥
*t̥-	*t̥, *t	d	*ɖ	*t̥	*t	*t	*t ^ˀ	*t̥, i/*ć	*t̥	*t̥
*-t̥-	*t̥, *t	d, t	*ɖ, *t	*t̥	*t	*tt	*t ^ˀ	*t̥	*t̥	*tt/t
*g-	*g	g, ʒ	*g	*g	*g ^h , *ġ ^h , *g ^{wh}	*k	*k ^ˀ	*g, *g	*g	*k
*-g-	*g	g, ʒ	*g	*g	*g ^h , *ġ ^h , *g ^{wh}	*γ	*g	*g, *g, *γ, *γ	*g	*k
*k-	*k	k, c	*k, *g?	*k	*g, ġ, *g ^w	*k	*k ^ˀ	*k, *q	*k	*k
*-k-	*k	k, c		*k	*g, ġ, *g ^w	*k	*g, *k	*g, *g, *γ, *γ	*g	*k
*k̥-	*k̥, *k	q	*γ, *k	*k̥	*k̥, ġ̥, *k ^w	*k	*k ^ˀ , *k ^ˀ	*k, *q	*x	*k
*-k̥-	*k̥	ʕ ?		*γ	*x, *x ^w , [*x̥?]	*Ø	*Ø	*Ø	*Ø, ? *g	*Ø

On the basis of these sound correspondences, Dolgopolsky (2008:8) reconstructs the following consonant system for Proto-Nostratic:

Stops and Affricates			Fricatives		Central	Lateral		
Vd.	Vls.	Emph.	Vd.	Vls.	Approximants	Nasals	Sonants	Vibrants
b	p	p̥			w	m		
d	t	t̥				n	l	
ʒ	c	c̥	z	s				
ʒ̣	č	č̥	ʒ	š		ɳ (= ɳ)	l	r
ʒ̣̣	ć	ć̥	ž	ś	y	ɳ	ḷ	ř
ʒ̣̣̣	ĉ	ĉ̥	ẑ	ṣ				
g	k	k̥				ŋ		
g	q	q̥	ɣ	χ				
			ħ	ħ (= ɸ)				
	ʔ			h				

Symbols: ʒ = dʒ; c = ts; ʒ̣ = dʒ̣; č = tʃ̣; lateral obstruents ʒ̣̣, ĉ, ĉ̣, ẑ, ṣ = lateralized ʒ, c, c̣, z, s; palatalized consonants ʒ̣̣̣, ć, ć̣, ž, ś, ɳ, ḷ, ř = palatalized ʒ, c, c̣, z, s, n, l, r; ḷ and ɳ (= ɳ) = cacuminal or retroflex l and n; uvular stops: g (voiced), q (voiceless), q̣ (“emphatic”); uvular fricatives: χ = Spanish j, ɣ = Arabic ġ /ġ/; epiglottal (pharyngeal) consonants: voiceless ħ (= ɸ = Arabic ʕ), voiced ʕ (= Arabic ʕ).

The system of vowels reconstructed by Dolgopolsky (2008:20—24) is identical to that reconstructed for Proto-Nostratic by Illič-Svityč (1971—1984.I: 152—153):

i		u ü
	e	o
	a ä	

5.2. Remarks on the Vowels

According to Bomhard (2008.1:214; 2014a.1:226—227), the following vowels may be reconstructed for Proto-Nostratic: **a*, **e*, **i*, **o*, and **u*. At least some of these vowels must have been subject to considerable subphonemic variation in the Nostratic parent language. The high front and back vowels **i* and **u*, in particular, may be assumed to have had lowered variants (indicated in the Proto-Nostratic reconstructions as **e* and **o* respectively), while the central low vowel **a* may be assumed to have had higher variants (indicated in the Proto-Nostratic reconstructions as **ə*). To complicate matters, **e* and **o* must also have existed as independent vocalic elements. It was the reanalysis, phonemicization, and exploitation of this subphonemic variation that gave rise to the ablaut and vowel harmony patterning found in the majority of the Nostratic daughter languages. It may be noted here that, according to Greenberg (1990), traces of an earlier system of vowel harmony can be discerned in Proto-Indo-European.

It is unclear whether phonemic long vowels existed in Proto-Nostratic as well, though the evidence seems to indicate that they did not, except in nursery words.

Finally, it may be noted that, while any vowel (**a*, **e*, **i*, **o*, **u*) could appear in initial syllables, only **a*, **i*, **u* could appear in non-initial syllables. This is identical to the patterning found in Dravidian.

6. Root Structure Patterning in Proto-Nostratic

Comparison of the various Nostratic daughter languages makes it possible to determine the rules governing the structural patterning of roots and stems in Proto-Nostratic. Most likely, the earliest patterning was as follows (cf. Bomhard 2008.1: 215—216 and 1:391—394; 2014a.1:227—228 and 1:418—419):

1. There were no initial vowels in Proto-Nostratic. Therefore, every root began with a consonant.
2. There were no initial consonant clusters either. Consequently, every root began with one and only one consonant. Medial clusters were permitted, however.
3. Two basic root types existed: (A) **CV* and (B) **CVC*, where *C* = any non-syllabic, and *V* = any vowel. Permissible root forms coincided exactly with these two syllable types.
4. A stem could either be identical with a root or it could consist of a root plus a single derivational morpheme added as a suffix to the root: **CVC+C-*. Any consonant could serve as a suffix. Note: In nominal stems, this derivational suffix was added directly to the root: **CVC+C-*. In verbal stems, it was added to the root plus formative vowel: **CVC+V+C-*.
5. A stem could thus assume any one of the following shapes: (A) **CV-*, (B) **CVC-*, (C) **CVC+C-*, or (D) (reduplicated) **CVC-CVC-*. As in Proto-Altaic, the undifferentiated stems were real forms in themselves and could be used without additional suffixes or grammatical endings. However, when so used, a vowel had to be added to the stem: (A) **CV-* > **CV* (no change), (B) **CVC-* > **CVC+V*, (C) **CVC+C-* > **CVC+C+V*, or (D) (reduplicated) **CVC-CVC-* > **CVC-CVC+V*. Following Afroasiatic terminology, this vowel may be called a “terminal vowel” (TV). Not only did terminal vowels exist in Proto-Afroasiatic, they are also found in Dravidian, where they are called “enunciative vowels”, and in Elamite, where they are called “thematic vowels”. In Proto-Dravidian, the enunciative vowel was only required in stems ending in obstruents, which could not occur in final position.

The original root structure patterning was maintained longer in Proto-Dravidian and Proto-Altaic than in the other branches, while the patterning found Proto-Indo-European, Proto-Kartvelian, and Proto-Afroasiatic is based upon slightly later developments. The root structure constraints found in Proto-Indo-European were an innovation. In Proto-Uralic, the rule requiring that all words end in a vowel was an

innovation and arose from the incorporation of the so-called “terminal vowel” into the stem. It should also be mentioned that reduplication was a widespread phenomenon.

On the basis of the evidence of Proto-Indo-European, Proto-Kartvelian, Proto-Afroasiatic, Proto-Dravidian, and Proto-Altaic, it may be assumed that there were three fundamental stem types: (A) verbal stems, (B) nominal (and adjectival stems), and (C) pronominal and indeclinable stems. Some stems were exclusively nominal. In the majority of cases, however, both verbal stems and nominal stems could be built from the same root. In Proto-Nostratic, only pronominal and indeclinable stems could end in a vowel. Verbal and nominal stems, on the other hand, had to end in a consonant, though, as noted above, when the undifferentiated stems were used as real words in themselves, a “terminal vowel” had to be added to the stem (but only when the stem ended in an obstruent). The terminal vowels were morphologically significant. Adjectives did not exist as an independent grammatical category in Proto-Nostratic.

During the earliest period of Proto-Nostratic, *roots* could only have the forms: (a) **CV-* and (b) **CVC-*. Type (a) was restricted to pronominal stems and indeclinables, while type (b) characterized nominal and verbal stems. A single *derivational suffix* could be placed after root type (b): **CVC+C* (derivational suffix). Grammatical relationships were indicated by placing *particles* either after the undifferentiated stem or after the stem plus a derivational suffix: (a) **CVC + CV* (particle [P]) or (b) **CVC+C* (derivational suffix [DS]) + *CV* (particle [P]). In nominal stems, a morphologically significant *terminal vowel* (TV) had to be added directly after the root, while in verbal stems, a *formative vowel* (FV) had to be added between the root and any following element, be it derivational suffix or particle; thus, we get the following patterns:

- | | |
|---|--|
| (A) (noun stem) <i>*CVC (+ C_{DS}) + V_{TV}</i> | (plus particle: <i>*CVC (+ C_{DS}) + V_{TV} + CV_P</i>) |
| (B) (verb stem) <i>*CVC + V_{FV} + C_{DS}</i> | (plus particle: <i>*CVC + V_{FV} + C_{DS} + CV_P</i>) |

The derivational suffixes were derivational rather than grammatical in that they affected the meaning of a word rather than the relationship to other words in a sentence.

This is essentially the stage represented in Proto-Dravidian, though Proto-Dravidian has added long vowels to the equation as well as stems beginning with a vowel (no doubt arising from the loss of initial laryngeals). Next, the formative vowel was reinterpreted as part of the derivational suffix in type (B): **CVC + VC + CV*. This is the stage represented by Proto-Afroasiatic and is the basis for the root structure patterning found in Proto-Kartvelian and Proto-Indo-European as well. From an Afroasiatic perspective, there is no such thing as “formative vowels” — they are only preserved in Dravidian and Elamite, though, in Elamite, their status is disputed.

7. Proto-Nostratic Morphology

The assumptions we make about the morphological and syntactical structure of a given proto-language profoundly affect the reconstructions that we propose. In what

follows, we will be discussing Bomhard's proposal (2008.1:387—391; 2014a.1:409—417) that Proto-Nostratic may have been an active language. Now, active languages exhibit specific characteristics that set them apart from other morphological types. Therefore, the reconstructions given below will conform with an active structure. However, it must be stressed that reconstructions should never be driven by theory alone. Rather, they must be fully consistent with the supporting data. Moreover, not only must our reconstructions be consistent with the supporting data, they must be consistent from a typological perspective as well, and they must be able to account for later developments in the descendant languages in as straightforward a manner as possible, without recourse to ad hoc rules. When reconstructions are driven by theory alone, the results can be disastrous.

Several scholars (such as Karl Horst Schmidt, Thomas Gamkrelidze, Vjačeslav Ivanov, Winfred P. Lehmann) have recently presented persuasive arguments in favor of reconstructing an early phase of Proto-Indo-European as an active language. Proto-Afroasiatic is also assumed to have been an active language. In active languages, subjects of both transitive and intransitive verbs, when they are agents semantically, are treated identically for grammatical purposes, while non-agent subjects and direct objects are treated differently. An “agent” may be defined as the entity responsible for a particular action or the entity perceived to be the cause of an action.

Above, we mentioned that Proto-Nostratic had *formative vowels*. Now, it is curious that the formative vowel can take different shapes in Proto-Dravidian: **a*, **i*, or **u*. This seems to indicate that the different formative vowels must have had some sort of morphological significance at one point in time, even though this distinction has been lost in Dravidian. Not only must the formative vowels have had morphological significance, the terminal vowels must also have had morphological significance.

For verbal stems, the formative vowels may have been aspect markers, as follows: **a* marked imperfective, **i* marked perfective, and **u* marked subordinate.

For nominal stems, the situation is a bit more complicated. The following patterning may be reconstructed for the earliest period of development in Proto-Nostratic: **-i/*-u* was used to mark the subject in active constructions, while **-a* was used to mark the direct object in active constructions as well as the subject in stative constructions. **-a* was also used to mark the so-called “*status indeterminatus*”.

In later Proto-Nostratic, this patterning became disrupted, though it may have survived into Proto-Afroasiatic. In later Proto-Nostratic, the relational markers **-ma* and **-na* came to be used to mark the direct object in active constructions as well as the subject in stative constructions. Eventually, these relational markers became the primary means of marking the direct object in active constructions or the subject in stative constructions, with the result that the older patterning became disrupted. Thus, in the latest stage of the Nostratic parent language, we find the following patterning:

1. **-i/*-u*: used to mark the subject in active constructions:

- (A) **CVC + i/u*
- (B) **CVC + C_{DS} + i/u*

(C) *CVC-CVC + i/u

2. *-a ~ *-ma/*-na: used to mark the direct object in active constructions as well as the subject in stative constructions:

(A) *CVC + a	plus *-ma/*-na: *CVC + a + ma/na
(B) *CVC + C _{DS} + a	plus *-ma/*-na: *CVC + C _{DS} + a + ma/na
(C) *CVC-CVC + a	plus *-ma/*-na: *CVC-CVC + a + ma/na

-ma/-na was the first case form (bound relational marker) to develop in Proto-Nostratic. The second was the genitive (in the sense ‘belonging to’) in *-nu. Indeed, these are the only two bound relational markers that can be confidently reconstructed for the latest period of Proto-Nostratic. Finally, it seems likely that unextended *-a remained as the indicator of the *status indeterminatus*.

Proto-Nostratic syntax was head-final, or left-branching, that is, dependents preceded their heads according to the so-called “rectum-regens rule”. In other words, “adverbs” preceded verbs, “adjectives” preceded nouns, and auxiliaries followed the main verb, though it must be emphasized here that adjectives did not exist as an independent grammatical category in Proto-Nostratic. The unmarked syntactical order was Subject + Object + Verb (SOV). It appears that Proto-Nostratic exhibited consistent ordering relations across phrasal categories.

8. Pronominal, Deictic, and Anaphoric Stems

8.1. First Person Stems

First person singular (active): *mi

First person plural (inclusive, active): *ma

First person (stative): *k^ha

First person (stative): *Ha

First person singular: *na

First person plural (exclusive, active): *na

First person (postnominal possessive/preverbal agentive): *ʔiya

At this point, a word or two should be said about the origin of the first person singular personal pronoun in Proto-Indo-European. As is well known, this pronoun has a number of different reflexes in the individual Indo-European daughter languages — they may be divided into several groups: (1) Greek ἐγώ(v) ‘I’, Latin *egō* ‘I’, Venetic *.e.go* ‘I’; (2) Gothic *ik* ‘I’, Runic *eka* ‘I’, Old Icelandic *ek* ‘I’; (3) Sanskrit *ahám* ‘I’, Old Persian *adam* ‘I’, Avestan *azəm* ‘I’; (4) Armenian *es* ‘I’, Lithuanian *àš* ‘I’ (Old Lithuanian *eš*), Latvian *es* ‘I’, Old Prussian *es, as* ‘I’; (5) Old Church Slavic *(j)azъ* ‘I’; (6) Old Hittite *ú-uk* ‘I’ (later *ú-ug-ga*). The first group points to Proto-Indo-European *ʔek’-oH(m) (traditional *eĝō(m)), the second to *ʔek’-om (traditional *eĝom), the third

to **ʔeg^h-om* (traditional **ēghom*), the fourth to **ʔek^h* (traditional **ek̂*), the fifth to **ʔēk'-om* or **ʔēgh^h-om* (traditional **ēghom* or **ēghom*), while the guttural in the sixth group (Hittite) is too phonetically ambiguous to be sure which group it should be assigned to — the *u-* is most likely due to the influence of the oblique forms of the first person personal pronoun, as proposed by Kloekhorst (2008:113—114). For additional forms, cf. Pokorny 1959:291. The variation seems to indicate that this pronoun stem was a late development in Proto-Indo-European. The common element is **ʔe-*, to which one or more than one additional elements have been added. The next element is always a guttural: **ʔe+k^h-*, **ʔe+k'-*, **ʔe+g^h-*. In the fourth group, no additional element has been added after the guttural (Armenian *es*, etc. < **ʔe+k^h*). In the first group, the element following the guttural is **-oH* (> **-ō*), which could be further extended by **-m* (as in Greek ἐγών — even ἐγώνε in Laconian). In the second group, the element following the guttural is **-om* (Gothic *ik*, etc. < **ʔe-k'-om*), and the same element characterizes the third (Sanskrit *ahám*, etc. < **ʔe-g^h-om*) and fifth groups as well, though the gutturals are different. Finally, the fifth group points to an earlier long vowel (Old Church Slavonic *(j)azъ* < **ʔē-k'-om* or **ʔē-g^h-om*). The origin of this pronoun is rather transparent — it was a compound deictic stem meaning something like ‘this one here’ (cf. Lehmann 2002:188—189). The elements **-oH* and **-om* are most likely due to the influence of the first person verbal endings (cf. Lehmann 2002:189; Szemerényi 1996:216).

Now, Greenberg (2000:77—81) has observed that a similar process has taken place in Chukchi-Kamchatkan. In Chukchi, the first person singular independent personal pronoun is *ɣəm* ‘I’ (< Proto-Chukchi-Kamchatkan **kəm*) and, in predication, *-iyəm* ~ *-eyəm*. Specifically, Greenberg notes (2000:81):

The entire form, with the initial vowel found in Indo-European and Chukotian, may then be interpreted as *e-ghē/a-m*, an emphatic focusing *e-* ‘that’ (No. 9), + *ghē-* ~ *gha-* ‘am,’ + *-m* (No. 1). However, the interpretation of initial *e-* as an instance of the near demonstrative *i* ~ *e* (No. 8) rather than the far demonstrative (No. 9) accords better with the Chukotian vowel alternation *i* ~ *e*. Moreover, the identification with the closer demonstrative of No. 8 is semantically more plausible for a first-person pronoun.

Unlike Proto-Indo-European, the same process took place in the second person singular personal pronoun in Chukchi-Kamchatkan as well. The Chukchi second person singular independent personal pronoun is *ɣət* (< Proto-Chukchi-Kamchatkan **kəð*) and, in predication, *-iyət* ~ *-eyət*.

These are interesting parallel developments found in Proto-Indo-European, on the one hand, and Proto-Chukchi-Kamchatkan, on the other. Both used the same inherited elements to create new personal pronoun stems. Though Greenberg sees these developments as ancient, it is more likely that they occurred independently at a relatively late date within each branch.

8.2. Second Person Stems

Second person (active): **t^hi* (~ **t^ha*)

Second person: **si*

Second person: **ni*

8.3. Anaphoric and Deictic Stems

Pronominal base of unclear deictic function: **-gi* (~ **-ge*)

Deictic particle: (A) **ʔa-* (~ **ʔə-*) (distant), (B) **ʔi-* (~ **ʔe-*) (proximate), and (C) **ʔu-* (~ **ʔo-*) (intermediate)

Deictic particle: (A) **k^ha-* (~ **k^hə-*) (proximate), (B) **k^hu-* (~ **k^ho-*) (distant), and (C) **k^hi-* (~ **k^he-*) (intermediate)

Deictic particle: (A) **t^ha-* (~ **t^hə-*) (proximate), (B) **t^hu-* (~ **t^ho-*) (distant), and (C) **t^hi-* (~ **t^he-*) (intermediate)

Deictic particle: **ša-* (~ **šə-*)

Anaphoric pronoun stem: **si-* (~ **se-*)

Anaphoric pronoun stem: **na-*, **ni-*

Deictic particle: **t^yha-* ‘that over there, that yonder (not very far)’

8.4. Interrogative, Relative, and Indefinite Stems

Relative: **k^{wh}i-* (~ **k^{wh}e-*); interrogative: **k^{wh}a-* (~ **k^{wh}ə-*)

Interrogative-relative stem: **ʔay-*, **ʔya-*

Interrogative: **mi-*; relative: **ma-*

Interrogative-relative: **na*

Indefinite: **ma-*, **mi-*, **mu-*

Indefinite: **d^yi-* (~ **d^ye-*) ‘this one, that one’

The following table correlates Bomhard’s (2008) reconstructions for the Proto-Nostratic first and second person personal pronouns with those of Illič-Svityč (1971—1984 and 2004), Dolgopolsky (1984 and 2008), Greenberg (2000), and Kortlandt (2010 a/b/c):

A. First person pronouns:

	Bomhard	Illič-Svityč	Dolgopolsky	Greenberg	Kortlandt
1st pers. sg. (active)	<i>*mi</i>	<i>*mi</i>	<i>*mi</i>	<i>*m</i>	<i>*mi</i>
1st pers. pl. (incl., active)	<i>*ma</i>	<i>*mā</i>		<i>*m</i>	<i>*me</i>
1st pers. (stative)	<i>*k^ha</i>			<i>*k</i>	
1st pers. (stative)	<i>*Ha</i>				
1st pers. sg.	<i>*na</i>	<i>*naHe-na</i> , <i>*na</i>		<i>*n</i>	
1st pers. pl. (excl., active)	<i>*na</i>		<i>*nV</i>	<i>*n</i>	
1st pers. (postnominal)	<i>*ʔiya</i>		<i>*HoyV</i>		

B. Second person pronouns:

	Bomhard	Illič-Svityč	Dolgopolsky	Greenberg	Kortlandt
2nd pers. (active)	* <i>tʰi</i> (~ * <i>tʰa</i>)	* <i>tʰa-na</i> , * <i>tʰa</i>	* <i>t[ü]</i> (> * <i>tʰi</i>)	* <i>t</i>	* <i>te</i>
2nd pers.	* <i>si</i>	* <i>si</i> - possessive	* <i>ś[ü]</i> (> * <i>śi</i>)	* <i>s</i>	
2nd pers.	* <i>ni</i>			* <i>n</i>	

The following table correlates Bomhard's reconstructions for the Proto-Nostratic anaphoric, deictic, interrogative, relative, and indefinite stems with those of Illič-Svityč, Dolgopolsky, Greenberg, and Kortlandt:

	Bomhard	Illič-Svityč	Dolgopolsky	Greenberg	Kortlandt
Deictic particle	*- <i>gi</i> (~ *- <i>ge</i>)			* <i>ge</i>	
Deictic particle	* <i>ʔa</i> - (~ * <i>ʔə</i> -), * <i>ʔi</i> - (~ * <i>ʔe</i> -), * <i>ʔu</i> - (~ * <i>ʔo</i> -)	* <i>ʔa</i> , * <i>ʔi</i> /* <i>ʔe</i>	* <i>ha</i> , * <i>[h]e</i> , * <i>[h]i</i> , * <i>[h]u</i>	* <i>i</i> ~ * <i>e</i> , * <i>a</i> ~ * <i>e</i>	* <i>i</i> /* <i>e</i>
Deictic particle	* <i>kʰa</i> - (~ * <i>kʰə</i> -), * <i>kʰu</i> - (~ * <i>kʰo</i> -), * <i>kʰi</i> - (~ * <i>kʰe</i> -)		* <i>K[ü]</i>	* <i>ku</i>	
Deictic particle	* <i>tʰa</i> - (~ * <i>tʰə</i> -), * <i>tʰu</i> - (~ * <i>tʰo</i> -), * <i>tʰi</i> - (~ * <i>tʰe</i> -)	* <i>tʰa</i>	* <i>tʰä</i>	* <i>t</i>	* <i>t</i>
Deictic particle	* <i>ša</i> - (~ * <i>šə</i> -)			* <i>s</i>	* <i>s</i>
Anaphoric pronoun stem	* <i>si</i> - (~ * <i>se</i> -)	* <i>šä</i>	* <i>sE</i>		
Anaphoric pronoun stem	* <i>na</i> -, * <i>ni</i> -		* <i>nE</i> (dual)		
Deictic particle	* <i>ʔʰa</i> -		* <i>čE</i>		
Relative	* <i>kʷhi</i> - (~ * <i>kʷhe</i> -)				
Interrogative	* <i>kʷha</i> - (~ * <i>kʷhə</i> -)	* <i>ko</i>	* <i>ko</i>	* <i>k</i>	* <i>k</i>
Interrogative-relative	* <i>ʔay</i> -, * <i>ʔya</i> -	* <i>ja</i>	* <i>ya</i>	* <i>j</i>	
Interrogative	* <i>mi</i> -	* <i>mi</i>	* <i>mi</i>	* <i>m</i>	
Relative	* <i>ma</i> -				
Interrogative-relative	* <i>na</i> -	* <i>na</i>		* <i>n</i>	
Indefinite	* <i>ma</i> -, * <i>mi</i> -, * <i>mu</i> -	* <i>mu</i>			
Indefinite	* <i>dʷi</i> - (~ * <i>dʷe</i> -)				

9. Nominal Morphology

The overall structure of nominals (nouns and adjectives) was as follows:

Root (+ derivational suffix) + terminal vowel
(+ relational marker) (+ number marker)

A stem could consist of the unextended root (**CVC*) or the root extended by a single derivational suffix (**(CVC+C)*). As has already been noted, it is necessary to recognize two distinct periods of development in Proto-Nostratic. In the earliest period

of development, the relational markers listed below were free relational morphemes (postpositional particles). In later Proto-Nostratic, however, at least two of them were well on their way to becoming bound relational morphemes (case suffixes).

As already noted, only the following two bound relational markers (case suffixes) can be confidently reconstructed for the latest period of Proto-Nostratic: (A) direct object **-ma*, **-na* and (B) genitive **-nu*. Other case relationships were expressed by postpositions (see below for a list), some of which developed into bound case morphemes in the individual daughter languages. This is confirmed by Dravidian, where only the accusative (**-ay*, **-Vn*), dative (**-kk-/*-k-*), and genitive (**-a*, **-in*) can be confidently reconstructed for the Dravidian parent language. Other case forms developed within the Dravidian daughter languages. Likewise, only the following two grammatical cases can be reconstructed for Proto-Uralic: (A) accusative **-m*, which probably was used to mark the definite direct object of finite verbs, and (B) a subordinate suffix **-n*, which functioned as a genitive/nominalizer with nouns and as an adverb formant with verbs. There were also at least three local cases in Proto-Uralic: (A) locative **-nA*, (B) separative **-tA* ~ **-tI*, and (C) and perhaps the latives **-k* (and/or **-ŋ*) and **-tʲ* (traditional **-č*) (and/or **-nʲ* [traditional **-ń*]). Denis Sinor (1988:714—725) has devoted an important study to the question of common case markers between Uralic and Altaic. He, too, posits a Proto-Uralic accusative in **-m* and a genitive in **-n*. For the former, he notes that nothing comparable can be posited for Proto-Turkic or Proto-Mongolian, but he does reconstruct a Proto-Tungus accusative **-m*, which is in agreement with what is found in Uralic. The clearest parallels for the latter are to be found in the Proto-Mongolian genitive **-n* and in the Proto-Turkic genitive **-n*. The genitive and accusative have converged in some Mongolian languages. This seems to indicate that Proto-Mongolian may have preserved the **-n* variant accusative form as opposed to the **-m* variant found in Uralic and Tungus. Sinor (1988:715—725) also discusses the Uralic and Altaic parallels between various local cases. Finally, it is worth mentioning here that, within Afroasiatic, Zaborski (1990:628) tentatively reconstructs the following case morphemes for Proto-Omotc: (A) nominative: **-i*; (B) genitive-instrumental-directional: **-kV*; (C) dative: **-s*; (D) dative-comitative: **-rV*; (E) accusative: **-a* and **-nV*; (F) instrumental-locative-directional-dative: **-nV*; and (G) ablative: **-pV*. Zaborski (1990:618) notes that some of these case forms may go back to earlier postpositions. Parallels with Cushitic show that at least some of these case forms go back to Proto-Afroasiatic. Diakonoff (1988:61) notes that the following cases can be established for Proto-Afroasiatic with reasonable certainty: (A) **-Vš*, **-šV*: locative-terminative; (B) **-dV*, **-Vd*: comitative, dative; (C) **-kV*: ablative and comparative; (D) **-Vm*: locative-adverbialis; (E) **-l*: directive; and (F) **-p* (also **-f*): ablative (in Omotic); conjunction, demonstrative pronoun in other languages. The ultimate Nostratic origin of several of the case forms posited by Zaborski for Proto-Omotc and by Diakonoff for Proto-Afroasiatic is completely transparent.

In Proto-Nostratic, adjectives did not exist as a separate grammatical category. They were differentiated from nouns mainly by syntactical means — “adjectives” preceded the nouns they modified. Moreover, they did not agree with the head noun in number or gender.

9.1. Relational Markers

Direct object: **-ma*

Direct object: **-na*

Possessive: **-nu* ‘belonging to’

Possessive: **-lV* ‘belonging to’

Dative: **-na* ‘to, for’

Directive: **-k^ha* ‘direction to or towards, motion to or towards’

Directive(-locative): **-ri* ‘direction to or towards, motion to or towards’ (?)

Locative: **-ni* ‘the place in, on, or at which something exists or occurs’

Locative, instrumental-comitative: **-ma* ‘in, from, with’

Locative: **-bi* ‘in addition to, together with’

Locative: **-i* ‘near to, near by’ (?)

Comitative-locative: **-da* ‘together with’

Oblique: **-t^ha*

The following table correlates Bomhard’s reconstructions for the Proto-Nostratic relational markers with those of Illič-Svityč, Dolgopolsky, Greenberg, and Kortlandt:

	Bomhard	Illič-Svityč	Dolgopolsky	Greenberg	Kortlandt
Direct object	<i>*-ma</i>	<i>*-mΛ</i>	<i>*-mΛ</i>	<i>*-m</i>	<i>*-m</i>
Direct object	<i>*-na</i>				
Possessive	<i>*-nu</i>	<i>*-n</i>	<i>*-nu</i>	<i>*-n</i>	<i>*-n</i>
Possessive	<i>*-lV</i>			<i>*-l</i>	
Dative	<i>*-na</i>				<i>*-nV</i>
Directive	<i>*-k^ha</i>	<i>*-kΛ</i>	<i>*-KV</i> [= <i>*-kV</i> ?]	<i>*-ka</i> dative	<i>*-ka</i> dative
Directive(-locative)	<i>*-ri</i>			<i>*-ru</i>	<i>*-rV</i>
Locative	<i>*-ni</i>	<i>*-na</i>		<i>*-n</i>	<i>*-nV</i>
Locative, instr.-comit.	<i>*-ma</i>			<i>*-m</i>	
Locative	<i>*-bi</i>			<i>*-bh-</i>	
Locative	<i>*-i</i>			<i>*-i</i>	
Comitative-locative	<i>*-da</i>	<i>*-da</i> locative	<i>*-d[E]H₁a</i>	<i>*-ta</i> locative	<i>*-du</i> , <i>*-da</i> (Altaic)
Oblique	<i>*-t^ha</i>	<i>*-tΛ</i> instrumental		<i>*-ta</i> ablative	<i>*-t</i> ablative

9.2. Dual and Plural Markers

Dual: **k^hi(-nV)*

Plural: **-t^ha*

Plural: **-ri*

Plural: **-k^hu*

Plural (Eurasian only): **-sV*

Plural/collective: **-la*

Plural: **-nV*

Note: plurality could also be expressed by reduplication of the root.

The following table correlates Bomhard's reconstructions for the Proto-Nostratic dual and plural markers with those of Illič-Svityč, Dolgopolsky, Greenberg, and Kortlandt:

	Bomhard	Illič-Svityč	Dolgopolsky	Greenberg	Kortlandt
Dual	* <i>k^{hi}(-nV)</i>		* <i>qV</i>	* <i>ki[n]</i>	* <i>ki</i>
Plural	* <i>t^ha</i>	* <i>-t</i>	* <i>-tV</i>	* <i>-t</i>	* <i>-t</i>
Plural	* <i>-ri</i>		* <i>-r[i]</i>	* <i>-ri</i>	
Plural	* <i>-k^hu</i>		* <i>-kU</i>	* <i>-ku</i>	
Plural (Eurasian only)	* <i>-sV</i>			* <i>-s</i>	
Plural/collective	* <i>-la</i>	* <i>-lA</i>	* <i>-lA</i>	* <i>-l</i>	
Plural	* <i>-nV</i>	* <i>-nA</i>	* <i>-n[ä]</i>	* <i>-n</i>	

9.3. Derivational Suffixes

Nominalizer: **-r-*

Nominalizer: **-m-*

Nominalizer: **-y-*

Nominalizer: **-t^h-*

Nominalizer: **-n-*

Nominalizer: **-l-*

Nominalizer: **-k^h-*

Nominalizer: **-k'-*

10. Verbal Morphology

In Proto-Nostratic, verbs fell into two types of construction: (A) active and (B) stative. In active constructions, which usually involved transitive verbs, the grammatical subject of the verb represented the agent performing the action, and the direct object represented the patient, or recipient, of the action. Stative constructions, on the other hand, expressed a state of affairs, rather than an event. Verbs expressed aspectual contrasts rather than temporal contrasts. Tense relates the time of the situation referred to to some other time, usually to the moment of speaking, while aspect marks the duration or type of temporal activity denoted by the verb. Proto-Nostratic had two aspects: (A) perfective (past) and (B) imperfective (non-past). Proto-Nostratic also had, at the very least, the following moods: (A) indicative; (B) imperative; (C) conditional; (D) hortatory-precativ; (E) inchoative; and (F) prohibitive. There was also a causative construction.

The overall structure of verbs was as follows:

Root + formative vowel (+ derivational suffix)
(+ mood marker) (+ person marker) (+ number marker)

A stem could consist of the unextended root or the root extended by a single derivational suffix (preceded, as indicated above, by a formative vowel). The position of the number marker seems to have been flexible — it could also be placed before the person marker. Gender was not marked. There were no prefixes in Proto-Nostratic. We may note here that Krishnamurti (2003:279 and 312) posits the following structure for verbs in Proto-Dravidian:

Stem + tense-mood + (gender-)number-person marker

Stative verbs were indifferent to number and, therefore, had no plural forms. They also had a special set of person markers different from those of active verbs. The following table lists the active and stative person markers reconstructed for Proto-Nostratic by Bomhard (2008.1:407; 2014a.1:436):

Person	Active person markers		Stative person markers
	Singular	Plural	
1p.	* <i>mi</i>	* <i>ma</i> (inclusive) (+ plural marker)	* <i>k^ha</i>
	* <i>na</i>	* <i>na</i> (exclusive) (+ plural marker)	* <i>Ha</i>
2p.	* <i>t^hi</i>	* <i>t^hi</i> (+ plural marker)	* <i>t^hi</i>
	* <i>si</i>		
	* <i>ni</i>		
3p.	* <i>ša-</i> (~ * <i>šə-</i>)	* <i>ša-</i> (~ * <i>šə-</i>) (+ plural marker)	* <i>Ø</i>
	* <i>na-</i> , * <i>ni-</i>	* <i>na-</i> , * <i>ni-</i> (+ plural marker)	

Morphologically, verbs could be either finite or non-finite. Finite forms could be marked for aspect, mood, person, and number, but not for gender or tense. Non-finite forms exhibited nominal inflection. In unmarked word order, the verb occupied the end position of a clause.

10.1. Non-finite Verb Forms

The following non-finite verb forms are widespread enough in the Nostratic daughter languages to guarantee their common origin, and, consequently, they are listed separately here. However, at the Proto-Nostratic level, they were indistinguishable from the nominalizing suffixes listed above.

Participle: *-*n-*

Participle: *-*t^h-*

Gerundive-participle: *-*l-*

The following table correlates Bomhard's reconstructions for the Proto-Nostratic non-finite verb forms with those of Illič-Svityč, Dolgopolsky, Greenberg, and Kortlandt:

	Bomhard	Illič-Svityč	Dolgopolsky	Greenberg	Kortlandt
Participle	*-n-		* $\bar{n}V$	*n	*n
Participle	*-t ^h -		* $\bar{t}V$	*t	*t
Gerundive-participle	*-l-			*l	*l

Note: Greenberg (2000:182—186, no. 44) also posits a participle in *nt for Eurasiatic. Bomhard (2008.1:356—357), however, regards this as a compound suffix: *-n- + *-t^h-.

10.2. Finite Verb Forms: Mood Markers

Imperative: *-k^ha, *-k^hi, *-k^hu; *-a, *-i, *-u

Conditional: *-ba

Hortatory-precative: *-li

Inchoative: *-na

Note: The bare stem could also serve as imperative, in which case *-a, *-i, or *-u were added to the stem.

The following table correlates Bomhard's reconstructions for the Proto-Nostratic mood markers with those of Illič-Svityč, Dolgopolsky, Greenberg, and Kortlandt:

	Bomhard	Illič-Svityč	Dolgopolsky	Greenberg	Kortlandt
Imperative	*-k ^h a, *-k ^h i, *-k ^h u		*kV ~ *gV	*ka	
Conditional	*-ba			*p	
Hortatory-precative	*-li			*l	
Inchoative	*-na				

10.3. Finite Verb Forms: Others

Causative: *-sV

The following table correlates Bomhard's reconstruction for the Proto-Nostratic causative marker with those of Illič-Svityč, Dolgopolsky, Greenberg, and Kortlandt:

	Bomhard	Illič-Svityč	Dolgopolsky	Greenberg	Kortlandt
Causative	*-sV			*s	

11. Illič-Svityč's and Dolgopolsky's Views on Proto-Nostratic Morphology

Illič-Svityč never published his views on Nostratic morphology during his lifetime. However, his notes were gathered together and published by Vladimir Dybo in 2004 in the proceedings of the Pécs Centennial Conference, edited by Irén Hegedűs and Paul Sidwell. According to Illič-Svityč, Proto-Nostratic was an inflected language, apparently of the accusative type. It had both nouns and adjectives. Nominal declension was only available in the singular. Adjectives were declined only if they were substantivized and used independently. Illič-Svityč reconstructs the nominal paradigm as follows:

1. Nominative-accusative: **-Ø* (zero); used for subject and unmarked object;
2. Marked object: **-mΛ*; used if the object had to be topicalized in the sentence if the possibility existed for an ambiguous interpretation of the phrase and if a definite object was indicated;
3. Genitive (connective): **-n*; possessive, etc.;
4. Instrumental: **-tΛ*;
5. Local cases: Lative: **-kα*;
Ablative: **-da*;
Essive (locative): **-n*.

Plurality was primarily indicated by a special marker: **-t*. Illič-Svityč also reconstructs an oblique plural marker **-j*, though he notes that this is less certain.

Illič-Svityč reconstructs the following types of personal pronouns:

1. Independent pronouns — specifically for indicating the pronominal subject;
2. Forms of the subject standing by a verb, primarily in a position preceding a noun;
3. Forms of the direct object of a verb, primarily in a position preceding a noun after the form of the subject;
4. Possessive forms next to nouns, primarily in a position after a noun.

Only the first and second person singular and plural pronouns were represented in these four types.

Illič-Svityč reconstructs the following stems for these types:

1. Independent pronouns; these stems could be extended by a facultative emphatic element **-na*:

1st person singular: **Λke-na*;
2nd person singular: **tΛ-na*;
1st person plural: **naHe-na*;
2nd person plural: ?
2. Forms of the subject of verbs:

1st singular: **a-*;

2nd singular: **ta-*;
1st plural: **na-*;
2nd plural: ?

3. Forms of the direct object:

1st singular: **mi-*;
2nd singular: **k-*;
1st plural: ?
2nd plural: ?

4. Possessive forms:

1st singular: **mi-*;
2nd singular: **si-*;
1st plural: **mAN*;
2nd plural: **sAN*.

Illič-Svityč also posits the following demonstrative stems (fulfilling the function of 3rd person pronouns): **ta-*, **šä-*, **mu-*; the following interrogative stems: **ko* ‘who?’, **mi* ‘what?’, and the following interrogative-relative stems: **ja*, **na* (?).

Illič-Svityč’s views on verb morphology were not as well developed. He reconstructs an imperative as well as the following two opposing verb categories: (1) The first designated the action itself (transferred to the object in the case of transitive verbs). This was used with the subject pronoun and (in the case of transitive verbs) with the object pronoun. Here, the nominal direct object was the marked form, and the verb stem coincided with the infinitive. (2) The other verb form was a derived noun ending in **-a*. It indicated the state of the subject. If the verb were transitive, it contained only the prefix of the subject, and, in this case, the object noun could not be marked and thus always appeared in the subjective-objective case. Finally, Illič-Svityč suggests that there existed a temporal (or aspectual) distinction between these two basic verb categories, which was probably realized with the help of deictic particles of pronominal origin.

Dolgopolsky’s views on Proto-Nostratic morphology differ from those of Illič-Svityč. According to Dolgopolsky, Proto-Nostratic was a highly analytic language. Dolgopolsky notes that Illič-Svityč, although recognizing the analytical status of many grammatical elements in Proto-Nostratic, still believed that some of them were agglutinated suffixes, specifically, the marker of oblique cases **-n* (= Dolgopolsky’s **nu* ‘of, from’), the formative of marked accusative **-m[Λ]* (= Dolgopolsky’s **mA*), the plural marker **-NA* (= Dolgopolsky’s **ñ[ä]*, used to mark collectivity and plurality), and several others. Dolgopolsky points out that Illič-Svityč’s position is unacceptable inasmuch as the Proto-Nostratic formants in question still preserve the following traces of their former analytic status: (1) mobility within a sentence (a feature of separate words rather than suffixes); (2) the fact that several particles are still analytic in some of

the Nostratic descendant languages; and (3) the fact that Proto-Nostratic etyma with grammatical and derivational function are sometimes identical with “autosemantic words”. Specifically, Dolgopolsky states (2008:26—27, §4. Grammatical Typology [lightly edited here]):

As we can see, Proto-Nostratic was a highly analytic language. In this point, there is a certain disagreement between Illič-Svityč and myself. Illič-Svityč, albeit recognizing the analytical status of many grammatical elements in Nostratic, still believed that some grammatical elements were agglutinated affixes: the marker of oblique cases **-n* (= my **nu* ‘of, from’), the formative of marked accusative **-m* (= my **mA*), the plural marker **-NA* (= my **ñ[ā]* of collectiveness and plurality), and several others. This interpretation is hardly acceptable because the Nostratic etyma in question still preserve traces of their former analytic status: (1) they preserve some mobility within the sentence (a feature of separate words rather than affixes), (2) several Proto-Nostratic particles are still analytic in some descendant languages, (3) Nostratic etyma with grammatical and derivational function are sometimes identical with autosemantic words. Thus, the element **nu* ‘of, from’ functions in the daughter languages not only as a case suffix (genitive in Uralic, Turkic, Mongolian, Tungus, formative of the stem of oblique case in the Indo-European heteroclitic nouns, part of the ablative case ending in Turkic, Kartvelian, and in Indo-European adverbs), but also as a preverb of separation/withdrawal in Indo-European (Baltic), as an analytic marker of separation/withdrawal (ablative) in Baltic (functioning in post-verbal and other positions). The element **mA* is still analytic in Manchu (*be*, postposition of the direct object) and Japanese (Old Japanese *wō* > *Jo*). On the analytical status of *Jo* (< Nostratic **mA*), *no* (< N **nu*), cf. Vrd.JG 278-82. The element **ñ[ā]* functions not only as a post-nominal and post-verbal marker of plurality (> plural suffix of nouns in Kartvelian, Hamito-Semitic, and Altaic, ending of 3 pl. of verbs in Kartvelian, part of the Indo-European ending **-nti* ~ **-nt* of 3 pl.), but also as the initial marker of plurality or abstractness (← collectiveness) in Uralic and Egyptian pronouns: Finnish *nuo* (pl.) ‘those’ ↔ *tuo* (sg.) ‘that’, *ne* (pl.) ‘those’ ↔ *se* (sg.) ‘that’, Egyptian *n3* abstract ‘this’ and ‘these (things)’ ↔ *p3* ‘this’ (m.) ↔ *t3* (f.). The animate plural deictic element (?) **yE* ‘these, they’ functions not only as the post-nominal marker of plurality (> plural ending in Indo-European, Uralic, Altaic, and Cushitic), but also as a pre-nominal and pre-pronominal plural marker (in Baltic, Beja, and Old English). The affix forming causative verbs in Hamito-Semitic may both precede the verbal root and follow it (e.g., in deverbal nouns), which points to an original analytic status of the corresponding Nostratic etymon. Hamito-Semitic **tw-* (prefix of reflexivization in derived verbs > Berber **tw-* → *t-* id., Semitic prefix and infix **[-]/t-*, etc.) and the Anatolian Indo-European reflexive particle **-ti* (> Hieroglyphic Luwian *-ti* ‘sich’, Luwian *-ti*, Lycian *-ti*, reflexive particle, Hittite *z-*, *-za* id.) are etymologically identical with Nostratic **tVwV* ‘head’ (preserved with this meaning in Kartvelian and Omotic), which proves the analytic origin of the marker of reflexivization. In the descendant languages, most of these grammatical auxiliary words and some pronouns turned into synthetic affixes (agglutinative in Early Uralic and Altaic, inflectional [fusional] in Indo-European and, to a certain extent, in Hamito-Semitic and Kartvelian).

Though Dolgopolsky seems to be implying that nominative-accusative structure is to be reconstructed for Proto-Nostratic, grammatical typology is actually not discussed. Some of the daughter languages do, indeed, exhibit nominative-accusative structure (Proto-Uralic, Proto-Altaic, and later stages of Proto-Indo-European), but others exhibit ergative-absolutive structure (Proto-Kartvelian, Proto-Eskimo-Aleut, and Proto-Chukchi-Kamchatkan), and still others exhibit stative-active structure (Proto-Afroasiatic and probably Proto-Elamo-Dravidian [definitely Elamite]), with each of these different grammatical structures requiring a different type of clause alignment.

No details are given as to how the inherited system was transformed into the systems found in the different daughter languages, nor is there any discussion of non-Nostratic languages or language families to show that the morphological structure being posited by Dolgopolsky for the Nostratic parent language has typological parallels in attested languages.

In actual fact, the type of grammatical structure that seems to be able to account best for the circumstances found in the Nostratic daughter languages is not nominative-accusative but, rather, stative-active (cf. Bomhard 2008.1:387—415). As noted above, this type of grammatical structure was found in Proto-Afroasiatic and Proto-Elamo-Dravidian. In addition, stative-active structure has been convincingly posited for earlier stages of Proto-Indo-European by a number of distinguished scholars (for details, cf. Bomhard 2008.1:417—529; 2014a.1:531—545).

Though Bomhard mostly agrees with Dolgopolsky that Proto-Nostratic was originally an analytic language, he maintains that, in its latest stage of development, several of the particles were beginning to develop into bound relational markers.

Bomhard devotes two chapters in his 2008 and 2014a books to Proto-Nostratic morphology. In the first chapter (Chapter 16), he presents the evidence, while, in the following chapter (Chapter 17), he attempts a systematic reconstruction of Proto-Nostratic morphology. He also devotes two chapters (18 and 19) to Proto-Indo-European morphology.

12. Prohibitive/Negative Particles and Indeclinables

Bomhard (2008.1:368—373, 1:383—386, 1:415) reconstructs the following negative/prohibitive particles and indeclinables for Proto-Nostratic:

Negative particles: **na*, **ni*, **nu*

Prohibitive particle: **ma(?)*

Negative particle: **ʔal-* (~ **ʔəl-*)

Negative particle: **li* (~ **le*) (?)

Negative particle: **ʔe*

Post-positional intensifying and conjoining particle: **k^{wh}a-* (~ **k^{wh}ə-*)

Particle: **k^{wh}ay-* ‘when, as, though, also’

Particle: **ħar^y-* ‘or; with, and; then, therefore’

Particle: **ʔin-* (~ **ʔen-*), **(-)ni* ‘in, into, towards, besides, moreover’

Sentence particle: **wa* (~ **wə*) ‘and, also, but; like, as’

Coordinating conjunction: **ʔaw-*, **ʔwa-* (~ **ʔwə-*) ‘or’

Note: The *CVC-* root structure patterning of some of these forms points to their ultimate nominal or verbal origin. For example, the negative particle **ʔal-* (~ **ʔəl-*) must ultimately have been a negative verb stem meaning ‘to be not so-and-so’, as in Dravidian (cf. Bomhard 2008.1:371—372, §16.57, and 2:578—580, no. 545; see also Greenberg 2000:214—217, §58. Negative E/ELE; Illič-Svityč 1971—1984.I:263—264, no. 128, **ʔāla* particle of categorical negation; Dolgopolsky 2008:106—107, no. 22, **ʔāla* particle of negation and categorical

prohibition), while **ɖin-* (\sim **ɖen-*), **(-)ni* was originally a nominal stem meaning ‘place, location’ (cf. Dolgopolsky 2008:130—133, no. 45, **ɖin̄[A]* ‘place’ [(in descendant languages) \rightarrow ‘in’]).

13. Remarks on Nostratic Sound Correspondences

The Nostratic sound correspondences given in the tables in the Appendix at the end of this paper are based exclusively upon the work of Bomhard (the correspondence sets established by Illič-Svityč and Dolgopolsky are presented at the beginning of this paper, though only for stops). As previously mentioned, Bomhard’s views differ in several significant respects from those of the Moscow School, as represented in the work of Illič-Svityč and Dolgopolsky. Bomhard bases his views on three fundamental assumptions:

1. The traditional reconstruction of the Proto-Indo-European consonant system is flawed and is to be reinterpreted along the lines proposed, on the one hand, by Thomas V. Gamkrelidze and Vjačeslav V. Ivanov and, on the other hand, by Paul J. Hopper, as follows (the reconstruction of the Proto-Indo-European stop system posited by Lehmann [1952:99] is given for comparison):

Lehmann				Gamkrelidze—Ivanov		
b	b ^h	p	=	p’	bh/b	ph/p
d	d ^h	t	=	t’	dh/d	th/t
g	g ^h	k	=	k’	gh/g	kh/k
g ^w	g ^{wh}	k ^w	=	k’ ^u	g ^u h/g ^u	k ^u h/k ^u

2. The frequency distribution of Proto-Nostratic stops (and affricates) in the reconstruction proposed by Illič-Svityč and Dolgopolsky is in contradiction to typological predictions, and is, therefore, highly suspect (see below).
3. Taking into consideration (1) the radical reinterpretation of the Proto-Indo-European consonant system proposed by Gamkrelidze, Ivanov, and Hopper, as well as (2) the problems in the frequency distribution of stops (and affricates) in the reconstruction of the Proto-Nostratic phonological system proposed by Illič-Svityč and Dolgopolsky, a different set of Nostratic sound correspondences is warranted.

Each of these assumptions must be evaluated independently. The reasons that each of these assumptions must be evaluated independently are as follows: Even if assumption 1 proves to be untenable, it does not invalidate assumption 2. Likewise, even if assumption 2 proves to be untenable, it does not invalidate assumption 1. Assumption 3, on the other hand, is dependent upon assumption 2 but not assumption 1. That is to say, assumption 3 is not dependent upon any particular reconstruction of the Proto-Indo-European consonant system, though, it goes without saying, if assumption 1 is valid, it reinforces the likelihood that the revised set of Nostratic sound

correspondences that Bomhard has proposed is correct. Inasmuch as assumption 3 is dependent on assumption 2, however, if assumption 2 is invalid, then assumption 3 is unnecessary. Moreover, even if assumption 2 is valid and a different set of Nostratic sound correspondences is warranted, it does not necessarily follow that the alternative correspondences that Bomhard has proposed are the only possible scenario, though other scenarios are considerably less likely.

Let us now consider the basis for assumption 2: The mistake that Illič-Svityč and Dolgopolsky made was in trying to equate the glottalized stops of Proto-Kartvelian and Proto-Afroasiatic with the traditional plain voiceless stops of Proto-Indo-European. Their reconstruction would make the glottalized stops the least marked members in the Proto-Nostratic labial series and the most marked in the velar series. Such a reconstruction is thus in contradiction to typological evidence, according to which glottalized stops uniformly have the opposite frequency distribution (most marked in the labial series and least marked in the velar series). The reason that Illič-Svityč's and Dolgopolsky's reconstruction contradicts the typological evidence is as follows: Illič-Svityč and Dolgopolsky posit glottalics for Proto-Nostratic on the basis of a small number of seemingly solid examples in which glottalics in Proto-Afroasiatic and/or Proto-Kartvelian appear to correspond to traditional plain voiceless stops in Proto-Indo-European. On the basis of these examples, they assume that, whenever there is a voiceless stop in the Proto-Indo-European examples they cite, a glottalic is to be reconstructed for Proto-Nostratic, even when there are no glottalics in the corresponding Kartvelian and Afroasiatic forms! This means that the Proto-Nostratic glottalics have the same frequency distribution as the Proto-Indo-European plain voiceless stops. Clearly, this cannot be correct (Alexis Manaster Ramer [1997] makes the same observation). The main consequence of the mistaken comparison of the glottalized stops of Proto-Kartvelian and Proto-Afroasiatic with the traditional plain voiceless stops of Proto-Indo-European is that Illič-Svityč and Dolgopolsky are led to posit forms for Proto-Nostratic on the basis of theoretical considerations but for which there is absolutely no evidence in any of the Nostratic daughter languages.

The question then arises: Do these criticisms completely invalidate the cognate sets involving glottalized stops (and affricates) proposed by Illič-Svityč and Dolgopolsky? Well, no, not exactly — it is not quite that simple. In many cases, the etymologies are correct, but the Proto-Nostratic reconstructions are wrong — here, a simple rewriting of the reconstructions is all that is required. Other examples adduced by Illič-Svityč and Dolgopolsky admit alternative explanations, while still others are questionable from a semantic point of view and should be abandoned. Once the questionable examples are removed, there is an extremely small number left over (no more than a handful) that appear to support their position. However, compared to the massive counter-evidence supplied by Bomhard (2008, volume 2), even these remaining examples become suspect (they may be borrowings or simply false cognates). Finally, there are even some examples where the comparison of glottalized stops in Proto-Kartvelian and Proto-Afroasiatic with plain voiceless stops in Proto-Indo-European is correct. This occurs in the cases where two glottalics originally appeared in a Proto-Nostratic root: **C'VC'*-. Such roots are preserved without change in Proto-Kartvelian

and Proto-Afroasiatic, while in Proto-Indo-European, they have been subject to a rule of regressive deglottalization: $*C'VC' \rightarrow *CVC'$.

We may close this section by noting that Campbell—Poser (2008:243—264) have recently prepared a highly critical and devastating assessment of the work on Nostratic by the Moscow School in general and by Illič-Svityč in particular. They conclude:

To summarize the results of our investigation of IS's Uralic and Indo-European data and his methods, we see serious problems with the methods utilized and with the data in a large number of the sets presented (see Campbell 1998, 1999 for details). With Uralic supposedly being the strong suit of Nostratic, we can only assume that the forms presented from the other putative Nostratic language families, where we have less expertise, probably exhibit a similar range of problems. Therefore, we do not accept the Nostratic hypothesis.

14. The Proto-Indo-European Phonological System

For the latest period of development (the stage that Bomhard calls “Disintegrating Indo-European”), the Proto-Indo-European phonological system may be reconstructed as follows (cf. Bomhard 2008.1:45—139; 2014a.1:45—151 for details — Lehmann 2002:201 reconstructs an almost identical system):

Obstruents:	p ^h	t ^h	k ^h	k ^{wh}		
	b ^h	d ^h	g ^h	g ^{wh}		
	(p')	t'	k'	k' ^w		
		s				
Laryngeals:	ʔ	h	ḥh			
			ʕḥ			
Resonants:	m/ṃ	n/ṇ	l/ḷ	r/ṛ	w/u	y/i
Vowels:	e	o	a	(i)	(u)	ə
	ē	ō	ā	ī	ū	

Notes:

1. There may also have been phonemic palatovelars ($*k^{yh}$, $*g^{yh}$, $*k'y$) at this stage.
2. In late Disintegrating Indo-European, laryngeals first merged into $*h$. $*h$ was then lost initially before vowels (except in Pre-Proto-Armenian, where $*h$ from earlier $*ḥh$ and $*ʕḥ$ was preserved) and medially between an immediately preceding vowel and a following non-syllabic. This latter change caused the compensatory lengthening of preceding short vowels, thus:

eHC	>	ēC
oHC	>	ōC
aHC	>	āC
iHC	>	īC
uHC	>	ūC

The following table compares the symbols used by Bomhard to represent the laryngeals with the symbols used by various other Indo-Europeanists (Kuryłowicz 1935; Couvreur 1937; Sturtevant 1942; Lehmann 1952 and 2002; Fortson 2004 and 2010; Clackson 2007; Mallory—Adams 1997):

Bomhard	Kuryłowicz	Couvreur	Sturtevant	Lehmann	Fortson	Clackson	Mallory— Adams
ʔ	ǵ ₁	ʼ	ʼ	ʔ	h ₁	h ₁	h ₁
ḥh	ǵ ₂	ḥ	x	x	h ₂	h ₂	h ₂
ʕh	ǵ ₃	ʕ	γ	γ	h ₃	h ₃	h ₃
h	ǵ ₄		?	h			h ₄

Appendix: Nostratic Sound Correspondences According to Bomhard

A. Consonants:

Proto-Nostratic	Proto-IE	Proto-Kartvelian	Proto-Afroasiatic	Proto-Uralic	Proto-Dravidian	Proto-Altaic	Proto-Eskimo
b-	b ^h -	b-	b-	p-	p-	b-	p-
-b-	-b ^h -	-b-	-b-	-w-	-pp-/-vv-	-b-	-v-
p ^h -	p ^h -	p-	p-, f-	p-	p-	p ^h -	p-
-p ^h -	-p ^h -	-p-	-p-, -f-	-p-	-pp-/-v-	-p ^h -	-p(p)-
p' -	(p' -)	p' -	p' -			p-	
-p' -	(-p' -)	-p' -	-p' -			-p-	

d-	d ^h -	d-	d-	t-	t-	d-	t-
-d-	-d ^h -	-d-	-d-	-t-	-t(t)-	-d-	-ð-
t ^h -	t ^h -	t-	t-	t-	t-	t ^h -	t-
-t ^h -	-t ^h -	-t-	-t-	-t(t)-	-tt-	-t ^h -	-t(t)-
t' -	t' -	t' -	t' -	t-	t-	t-	t-
-t' -	-t' -	-t' -	-t' -	-t-	-t(t)-	-t-	-t-

d ^y -	d ^h -	žg-	d ^y -	t ^y -	c-	ž-	c-
-d ^y -	-d ^h -	-žg-	-d ^y -	-t ^y -	-c(c)-/-y-	-ž-/-d-	-c-
t ^y ^h -	t ^h -	čk-	t ^y -	t ^y -	c-	č ^h -	c-
-t ^y ^h -	-t ^h -	-čk-	-t ^y -	-t ^y -	-c(c)-/-y-	-č ^h -	-c(c)-
t' ^y -	t' -	č'k' -	t' ^y -	t ^y -	c-	č-	c-
-t' ^y -	-t' -	-č'k' -	-t' ^y -	-t ^y t ^y -	-c(c)-/-y-	-č-	-c-
s ^y -	s-	šk-	s ^y -	s ^y -	c-	s-	
-s ^y -	-s-	-šk-	-s ^y -	-s ^y -	-c(c)-/-y-	-s-	

ž-	d ^h -	ž-	ž-	č-	c-	ž-	c-
-ž-	-d ^h -	-ž-	-ž-	-č-	-c(c)-	-ž-/-d-	-c-
c ^h -	t ^h -	c-	c-	č-	c-	č ^h -	c-
-c ^h -	-t ^h -	-c-	-c-	-č-	-c(c)-	-č ^h -	-c(c)-
c' -	t' -	c' -	c' -	č-	c-	č-	c-
-c' -	-t' -	-c' -	-c' -	-č-	-c(c)-	-č-	-c-
s-	s-	s-	s-	s-	c-	s-	
-s-	-s-	-s-	-s-	-s-	-c(c)-	-s-	
z-	s-	z-	z-	s-		z-	
-z-	-s-	-z-	-z-	-s-			

Proto-Nostratic	Proto-IE	Proto-Kartvelian	Proto-Afroasiatic	Proto-Uralic	Proto-Dravidian	Proto-Altaic	Proto-Eskimo
ǵ-	d ^h -	ǵ-	ǵ-	č-	c-	ǵ-	c-
-ǵ-	-d ^h -	-ǵ-	-ǵ-	-č-	-c(c)-	-ǵ-/d-	-c-
č ^h -	t ^h -	č-	c-	č-	c-	č ^h -	c-
-č ^h -	-t ^h -	-č-	-c-	-č-	-c(c)-	-č ^h -	-c(c)-
č'-	t'-	č'-	c'-	č-	c-	č-	c-
-č'-	-t'-	-č'-	-c'-	-č-	-c(c)-	-č-	-c-
š-	s-	š-	s-	s-	c-	s-	
-š-	-s-	-š-	-s-	-s-	-c(c)-	-s-	

g-	g ^h -	g-	g-	k-	k-	g-	k- q-
-g-	-g ^h -	-g-	-g-	-x-	-k-	-g-	-γ-
k ^h -	k ^h -	k-	k-	k-	k-	k ^h -	k- q-
-k ^h -	-k ^h -	-k-	-k-	-k(k)-	-k(k)-	-k ^h -	-k(k)- -q(q)-
k'-	k'-	k'-	k'-	k-	k-	k-	k- q-
-k'-	-k'-	-k'-	-k'-	-k-	-k(k)-	-k-	-k- -q-

g ^w -	g ^{wh} -	gw/u-	g ^w -	k-	k-	g-	k- q-
-g ^w -	-g ^{wh} -	-gw/u-	-g ^w -	-x-	-k-	-g-	-γ-
k ^{wh} -	k ^{wh} -	kw/u-	k ^w -	k-	k-	k ^h -	k- q-
-k ^{wh} -	-k ^{wh} -	-kw/u-	-k ^w -	-k(k)-	-k(k)-	-k ^h -	-k(k)- -q(q)-
k' ^w -	k' ^w -	k' ^w /u-	k' ^w -	k-	k-	k-	k- q-
-k' ^w -	-k' ^w -	-k' ^w /u-	-k' ^w -	-k-	-k(k)-	-k-	-k- -q-

g-	g ^h -	g-	g- (?)	k-	k-	g-	k- q-
-g-	-g ^h -	-g-	-g- (?)	-x-	-k-	-g-	-γ-
q ^h -	k ^h -	q-	q- (?)	k-	k-	k ^h -	k- q-
-q ^h -	-k ^h -	-q-	-q- (?)	-k(k)-	-k(k)-	-k ^h -	-k(k)- -q(q)-
q'-	k'-	q'-	q'- (?)	k-	k-	k-	k- q-
-q'-	-k'-	-q'-	-q'- (?)	-k-	-k(k)-	-k-	-k- -q-
q' ^w -	k' ^w -	q' ^w /u-	q' ^w - (?)	k-	k-	k-	k- q-
-q' ^w -	-k' ^w -	-q' ^w /u-	-q' ^w - (?)	-k-	-k(k)-	-k-	-k- -q-

Proto-Nostratic	Proto-IE	Proto-Kartvelian	Proto-Afroasiatic	Proto-Uralic	Proto-Dravidian	Proto-Altaic	Proto-Eskimo
<u>t</u> ɬ ^h -	k ^h -	x-	<u>t</u> ɬ-	s ^y -	c-	š-	ɬ-
- <u>t</u> ɬ ^h -	-k ^h -	-x-	- <u>t</u> ɬ-	-δ-	-k-		-ɬ-
<u>t</u> ɬ'-	k'-		<u>t</u> ɬ'-	δ ^y -	t-		
- <u>t</u> ɬ'-	-k'-		- <u>t</u> ɬ'-	-δ ^y -	-t(t)-		

ɣ-	ɣ̥h-	Ø-	ɣ-	Ø-	Ø-	Ø-	Ø-
-ɣ-	-ɣ̥h-	-Ø-	-ɣ-	-Ø-	-Ø-	-Ø-	-Ø-
ħ-	ħh-	x-	ħ-	Ø-	Ø-	Ø-	Ø-
-ħ-	-ħh-	-x-	-ħ-	-Ø-	-Ø-	-Ø-	-Ø-
ʔ-	ʔ-	Ø-	ʔ-	Ø-	Ø-	Ø-	Ø-
-ʔ-	-ʔ-	-Ø-	-ʔ-	-Ø-	-Ø-	-Ø-	-Ø-
h-	h-	Ø-	h-	Ø-	Ø-	Ø-	Ø-
-h-	-h-	-Ø-	-h-	-Ø-	-Ø-	-Ø-	-Ø-

y-	y-	y-/Ø-	y-	y-	y-/Ø-		y-
-y-	-y-		-y-	-y-	-y-	-y-	-y-
w-	w-	w-	w-	w-	v-/Ø-		v-
-w-	-w-	-w-	-w-	-w-	-v-		-v-

m-	m-	m-	m-	m-	m-	m-	m-
-m-	-m-	-m-	-m-	-m-	-m-	-m-	-m-
n-	n-	n-	n-	n-	n-	n-	n-
-n-	-n-	-n-	-n-	-n-	-n-/- <u>n</u> -	-n-	-n-
n ^y -	n-		n-	n ^y -	ñ-	n ^y -	
-n ^y -	-n-		-n-	-n ^y -	- <u>n</u> -	-n ^y -	
-ŋ-	-n-		-n-	-ŋ-	- <u>n</u> -	-ŋ-	-ŋ-

l-	l-	l-	l-	l-	l-	l-	
-l-	-l-	-l-	-l-	-l-	-l-	-l-	-l-
-l ^y -	-l-	-l-	-l-	-l ^y -	ɭ-	-l ^y -	-y-
r-	-r-	-r-	-r-	r-			
-r-	-r-	-r-	-r-	-r-	-r-/- <u>r</u> -	-r-	-R-
-r ^y -	-r-	-r-	-r-	-r ^y -	-r̥-	-r ^y -	

B. Vowels:

Proto-Nostratic	Proto-IE	Proto-Kartvelian	Proto-Afroasiatic	Proto-Uralic	Proto-Dravidian	Proto-Altaic	Proto-Eskimo
i	i e	i	i	i	i	i	i
ə	e a ə	e i	i u	e	e	e	ə
u	u o	u	u	u	u	u	u
e	e	e	e	e	e	e	i
a	a o ə	a	a	a ä	a	a	a
o	o	o	o	o	o	o	u
iy	īy ey ī ē	iy i	iy	iy i	iy ī		iy
əy	ey ay īy	ey i	iy uy	ey	ey ē		əy
uy	īy ī ī	uy i	uy	uy	uy ū		uy
ey	ey īy ē ī	ey i	ey	ey e	ey ē		iy
ay	ay oy īy	ay i	ay	ay äy	ay ā		ay
oy	oy īy ī	oy i	oy	oy	oy ō		uy
iw	ū ũw ũ	iw u	iw	iw	iv ī		iv
əw	ew aw ūw ũ	ew u	iw uw	ew	ev ē		əv
uw	ū ō ũw ow ũ	uw u	uw	uw u	uv ū		uv
ew	ew ũw ũ	ew u	ew	ew	ev ē		iv
aw	ow ũw ũ	aw u	aw	aw äw	av ā		av
ow	ō ow ūw ũ	ow u	ow	ow o	ov ō		uv

Note: The Proto-Altaic vowels given above are according to Starostin—Dybo—Mudrak's (2003) reconstruction. The developments of the sequences **iy*, **əy*, **uy*, **ey*, **ay*, **oy*, **iw*, **əw*, **uw*, **ew*, **aw*, **ow* in Proto-Altaic are unclear.

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